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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,670	08/08/2003	John Zagaja	PES-0160	1669
23462	7590	10/19/2006		
CANTOR COLBURN, LLP - PROTON 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			EXAMINER ZHENG, LOIS L	
			ART UNIT	PAPER NUMBER
			1742	
DATE MAILED: 10/19/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,670

Applicant(s)

ZAGAJA ET AL.

Examiner

Lois Zheng

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 and 30-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 30-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Status

1. No amendments are made to the claims in view of applicant's remarks filed 7 June 2006. Therefore, claims 1-27 and 30-32 remain under examination.

Previous Claim Objections

2. The objections of claims 19 and 23 are withdrawn in view of applicant's argument filed 7 June 2006.

Specification

3. The disclosure is objected to because of the following informalities: Figures 10 and 12 are not discussed in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-7, 10, 13-15, 17-18, 20-22 and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Carlson et al. US 5,372,689(Carlson).

The rejection grounds for the instant claims 1-7, 10, 13-15, 17-18, 20-22 and 24-27 are maintained for the same reasons as set forth in paragraph 4 of the previous Non-Final Office Action mailed 7 March 2006.

6. Claims 1-5, 8, 15, 17-18 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Gorman et al US Patent Application Publication 2002/0086195(Gorman).

The rejection grounds for the instant claims 1-5, 8, 15, 17-18 and 31 are maintained for the same reasons as set forth in paragraph 5 of the previous Non-Final Office Action mailed 7 March 2006.

7. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Anderson et al US Patent Application Publication 2003/0230495 A1(Anderson).

The rejection ground for the instant claim 20 is maintained for the same reasons as set forth in paragraph 6 of the previous Non-Final Office Action mailed 7 March 2006.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 16, 19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson et al. US 5,372,689(Carlson).

The rejection grounds for the instant claims 16, 19 and 23 are maintained for the same reasons as set forth in paragraph 8 of the previous Non-Final Office Action mailed 7 March 2006.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson in view of Shiepe et al. US 6,365,032 B1(Shiepe).

The rejection ground for the instant claim 9 is maintained for the same reasons as set forth in paragraph 9 of the previous Non-Final Office Action mailed 7 March 2006.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson in view of Chartier et als. US 2004/0183055 A1(Chartier).

The rejection ground for the instant claim 9 is maintained for the same reasons as set forth in paragraph 10 of the previous Non-Final Office Action.

12. Claims 11-12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson in view of Skoczylas et al. US 6,666,961 B1(Skoczylas).

The rejection grounds for the instant claims 11-12 and 30 are maintained for the same reasons as set forth in paragraph 11 of the previous Non-Final Office Action mailed 7 March 2006.

13. Claims 6, 9, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman.

The rejection grounds for the instant claims 6, 9, 16 and 19 are maintained for the same reasons as set forth in paragraph 12 of the previous Non-Final Office Action mailed 7 March 2006.

14. Claims 10-12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman in view of Skoczylas.

The rejection grounds for the instant claims 10-12 and 30 are maintained for the same reasons as set forth in paragraph 13 of the previous Non-Final Office Action mailed 7 March 2006.

15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman in view of Carlson.

The rejection ground for the instant claim 13 is maintained for the same reasons as set forth in paragraph 14 of the previous Non-Final Office Action.

16. Claims 14, 20-25, 27 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman in view of Shiepe.

The rejection grounds for the instant claims 14, 20-25, 27 and 32 are maintained for the same reasons as set forth in paragraph 15 of the previous Non-Final Office Action mailed 7 March 2006.

17. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman in view of Shiepe, and further in view of Skoczylas.

The rejection ground for the instant claim 26 is maintained for the same reasons as set forth in paragraph 16 of the previous Non-Final Office Action.

Response to Arguments

18. Applicant's arguments filed 7 June 2006 have been fully considered, but are only partially persuasive.

In the remarks, applicant argues that none of the references teach a sintered porous support member and the word "sintered" does provide structural limitation. Applicant backs up this argument with a definition of "sintered" from Schlumberger

(<http://www.glossary.oilfield.slb.com/Display.cfm?Term=sintered>), which refers sintered to a "type". In the context of applicant's invention, applicant argues that "sintered" describe a type of porous support member

The examiner does not find applicant's argument persuasive since a porous support member can be made by a different process such as a process that does not involve sintering as evidenced by Solomon et al. US 4,339,325(Solomon). Solomon teaches forming a porous electrode backing sheet without sintering(abstract, col. 2 lines 32-34). In addition, applicant's definition of "sintered" still does not describe any structure limitations in a "sintered" porous support member. Furthermore, it is examiner's position that "sintered" or "non-sintered" porous support member performs the same function in the type of electrochemical cell as claimed(i.e. both to provide support to the electrodes) as evidenced by Solomon.

Applicant further argues that Carlson only discloses multiple pore sizes, which is different from disclosing different portions with different porosities as claimed.

The examiner does not find applicant's argument persuasive since the definition of first and the second portions is not well defined. For example, the size of the portion is not disclosed in the instant application. Therefore, based on the broadest reasonable interpretation, any portions of the porous support member as taught by Carlson would read on the claimed first or second portions, even those portions that only contain one pore of different pore sizes. Porosities for these portions on the porous support member of Carlson would be different as claimed.

Applicant further argues that there is no teaching, suggestion or motivation to combine the electrode(s) with the porous support member as alleged by the examiner.

The examiner does not find applicant's argument persuasive. Claims 16, 19 and 23 of the instant invention simply recites a support member including a electrode. Even though applicant argues that the present invention is not the mere combination of two mechanical components, the instant claims do not contain sufficient structural limitations to differentiate themselves from a mere combination of two mechanical components(i.e. the support member and the electrode). Therefore, based on the guidelines provided by MPEP 2144.04 on making parts integral, it is well settled that the use of a one piece construction instead of the separate structures would be a merely a matter of obvious engineering choice. In re Larsen, 350 F.2d 965,968,144 USPQ 347, 349 (CCPA 1965). In addition, it would also have been obvious to one of ordinary skill in the art to have combined the support member and the electrode of Carlson in order to make a one-piece integrated component for simplicity and easy transportation.

Applicant further argues that Carlson would not have achieved its intended function if its support member is replaced with the sheet with porosity gradient as taught by Shiepe.

Shiepe teaches that its pressure pad, which can be used as the primary means of membrane support, has a porosity gradient. This porosity gradient improves fluid distribution to the membrane, which implies fluid flow towards the membrane(i.e. one direction). The porosity gradient also lowers the voltage required for electrochemical reaction, which implies improved generation of product gas which moves away from the

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membrane(i.e. opposite direction). See col. 4 lines 44-52 of Shiepe. Therefore, the pressure pad of Shiepe, when incorporated into the support member of Carlson, is capable of handling dual-directional flow to achieve the intended function of Carlson. Therefore, the examiner does not find applicant's argument persuasive.

Regarding applicant's arguments that Carlson and Chartier are directed to different types of electrochemical cells and there is no motivation to combine Carlson and Chartier other than those of hindsight, the examiner does not find applicant's argument persuasive. Both Carlson and Chartier are electrochemical cells that are used to generate oxygen and hydrogen. Energy cost savings and diffusion, disassociation and recombination of oxygen are concerns to both Carlson and Chartier. Therefore, the examiner maintains the position that it would have been obvious to one of ordinary skill in the art to have incorporated the controlled porosity gradient in the porous support layer of Chartier into the porous support member of Carlson in order to reduce energy cost and promote diffusion, disassociation and recombination of oxygen as taught by Chartier.

Regarding applicant's arguments of Skoczylas' teaching of various types of grooves and flow fields are not functionally equivalent, the examiner still does not find applicant's argument persuasive since the various patterns of the flow fields as taught by Skoczylas performs the same function, which is to properly distribute fluid in the electrochemical cell. Therefore, the examiner maintains the position that various patterns on the flow fields are functionally equivalent. Arguendo, it would still have been obvious to one skilled artisan to have vary the patterns of the flow field via routine

optimization in order to achieve the desired flow distribution pattern during the electrochemical process.

Regarding applicant's argument on the combination of Gorman and Shiepe, the examiner does not find applicant's argument persuasive since the pressure pad as taught by Shiepe was not incorporated into Gorman to replace Gorman's water transport plate. The pressure pad of Shiepe was incorporated into apparatus of Gorman since Shiepe teaches that its pressure pad improves fluid distribution to the membrane and lower the voltage required for the electrochemical reaction at the same time providing structural integrity to the membrane(col. 4 lines 44-50). Therefore, proper motivation to combine Gorman and Shiepe has been provided, which establishes a prima facie case of obviousness.

Conclusion

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ

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